

barrier layer and said conductive film from outside of said groove for wiring by polishing, thereby forming a wiring;

(c) cleaning a surface of said insulating film to remove conductive film that remains on said first insulating film in said step (b);

(d) forming a cap conductive film on said wiring by selective growth or preferential growth of said cap conductive film on said wiring; and

(e) forming a second insulating film over said cap conductive film and said first insulating film.

β'  
2. (Amended) A method for manufacturing a semiconductor integrated circuit device, comprising the steps of:

(a) forming a groove for wiring in a first insulating film formed on a semiconductor substrate;

(b) successively forming a barrier layer and a conductive film over said first insulating film including the inside of said groove for wiring and removing said barrier layer and said conductive film from outside of said groove for wiring by polishing, thereby forming a wiring;

(c) cleaning a surface of said insulating film to remove conductive film that remains on said first insulating film in said step (b);

(d) forming a cap conductive film on said wiring in self-alignment with said wiring by selective growth or preferential growth of said cap conductive film on said wiring;

(e) forming a second insulating film over said cap conductive film and said first insulating film;

(f) partly removing said second insulating film on said wiring to form an

opening so that said cap conductive film is exposed; and

(g) forming a second conductive film in said opening.

3. (Amended) A method for manufacturing a semiconductor integrated circuit device, comprising the steps of:

(a) forming a first wiring on a semiconductor substrate;

(b) forming a first insulating film on said first wiring;

(c) removing said first insulating film at a portion thereof corresponding to a contact region of said first wiring to form a contact hole;

(d) forming a first conductive film over said insulating film including the inside of said contact hole;

(e) removing said first conductive film from outside of said contact hole to form a plug;

(f) forming a second insulating film over said first insulating film and said plug;

(g) removing said second insulating film at a portion thereof corresponding to a region where a second wiring is to be formed, thereby forming a groove for wiring;

(h) successively forming a barrier layer and a second conductive film on said second insulating film including the inside of the said groove for wiring;

(i) removing said barrier layer and said second conductive film from outside of said groove for wiring by polishing to form a second wiring;

(j) cleaning a surface of said second insulating film to remove said second conductive film that remains on said second insulating film in said step (i);

(k) forming a cap conductive film on said second wiring in self-alignment

with said second wiring by selective growth or preferential growth of said cap  
conductive film on said second wiring; and

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could* (l) forming a third insulating film over said cap conductive film and said  
second insulating film.

4. A method for manufacturing a semiconductor integrated circuit device,  
comprising the steps of:

*B'* (a) forming a first wiring on a semiconductor substrate;  
(b) successively forming a first insulating film and a second insulating film  
on said first wiring;

(c) removing said first insulating film and said second insulating film at a  
portion thereof corresponding to a contact region of said first wiring to form a contact  
hole;

(d) removing said second insulating film at a portion thereof  
corresponding to a region where a second wiring is to be formed thereby forming a  
groove for wiring;

(e) successively forming a barrier layer and a conductive film on said  
second insulating film including said contact hole and the inside of the said groove  
for wiring;

(f) removing said barrier layer and said conductive film from outside of  
said contact hole and said groove for wiring by polishing to form a second wiring and  
a connection between said first wiring and said second wiring;

(g) cleaning a surface of said second insulating film to remove said  
second conductive film that remains on said second insulating film in said step (f);

(h) forming a cap conductive film on said second wiring in self-alignment

with said second wiring by selective growth or preferential growth of said cap conductive film on said second wiring; and

(i) forming a third insulating film over said cap conductive film and said second insulating film.

5. A method for manufacturing a semiconductor integrated circuit device, comprising the steps of:

β'  
(a) forming a first wiring on a semiconductor substrate;  
(b) successively forming a first insulating film and a second insulating film on said first wiring;

(c) removing said second insulating film at a portion thereof corresponding to a region where a second wiring is to be formed to form a groove for wiring;

(d) removing said first insulating film at a portion thereof corresponding to a contact region of said first wiring thereby forming a contact hole;

(e) successively forming a barrier layer and a conductive film on said second insulating film including said contact hole and the inside of the said groove for wiring;

(f) removing said barrier layer and said conductive film from outside of said contact hole and said groove for wiring by polishing to form a second wiring and a connection between said first wiring and said second wiring;

(g) cleaning a surface of said second insulating film to remove said second conductive film that remains on said second insulating film in said step (f);

(h) forming a cap conductive film on said second wiring in said self-alignment with said second wiring by selective growth or preferential growth of said

cap conductive film on said second wiring; and

(i) forming a third insulating film over said cap conductive film and said second insulating film.

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12. (Amended) A method for manufacturing a semiconductor integrated circuit device according to Claim 1, wherein said second insulating film is formed by the steps of:

B<sup>2</sup> (a) forming, on said cap conductive film, a diffusion-preventing insulating film for preventing the diffusion of a conductor material constituting said cap conductive film; and

(b) forming, on said diffusion-preventing insulating film, a low dielectric insulating film whose dielectric constant is lower than said diffusion-preventing insulating film.

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sub C19  
B<sup>3</sup> 15. (Amended) A method for manufacturing a semiconductor integrated circuit device according to Claim 1, wherein said cleaning in said step (c) is performed by using a solution containing at least one of hydrogen fluoride (HF), citric acid, oxalic acid, hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), hydrochloric acid (HCl), sulfuric acid (H<sub>4</sub>SO<sub>4</sub>), and ammonia (NH<sub>3</sub>).

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16. (Amended) A method for manufacturing a semiconductor integrated circuit device according to Claim 1, wherein said step (c) includes a sub-step of treating substrate surfaces with hydrogen.

17. (Amended) A method for manufacturing a semiconductor integrated circuit device according to Claim 1, wherein said step (d) includes a sub-step of cleaning substrate surfaces with a solution containing at least one of hydrogen fluoride (HF), hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) and citric acid after the selective growth or preferential growth of said cap conductive film.

39. (Amended) A method for manufacturing a semiconductor integrated circuit device, comprising the steps of:

(a) forming a groove in a first insulating film formed on a semiconductor substrate;

(b) depositing a first conductive film comprising copper as a main component thereof on said first insulating film including the groove;

(c) removing said first conductive film from outside of said groove by polishing to bury said first conductive film in said groove;

(d) cleaning with a solution capable of removing a foreign matter or a contaminant metal from a surface of said first insulating film to remove said contaminant metal that remains on a surface of said first insulating film in said step (c); and

(e) forming a cap conductive film on said first conductive film in said groove in self-alignment with said first conductive film by selective growth of the cap conductive film on said first conductive film buried in said groove by a selective CVD (chemical vapor deposition) method.

40. (Amended) A method for manufacturing a semiconductor integrated circuit device according to Claim 39, further comprising, after said step (e), cleaning

with a solution capable of removing a foreign matter or a contaminant metal.

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41. (Amended) A method for manufacturing a semiconductor integrated circuit device according to Claim 39, wherein said cleaning in said step (d) is a cleaning with a solution containing at least one of hydrogen fluoride (HF), citric acid, oxalic acid, hydrogen peroxide ( $H_2O_2$ ), hydrochloric acid (HCl), sulfuric acid and ammonia ( $NH_3$ ).

42. (Amended) A method for manufacturing a semiconductor integrated circuit device according to Claim 39, wherein said cap conductive film is made of a tungsten film.

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Please **cancel** previously non-elected claims 18-36 and 38 without prejudice or disclaimer of the subject matter (applicants reserve their right to subsequently file a divisional application directed thereto).

Please **insert** new claims 51-54, as follows:

51. A method for manufacturing semiconductor integrated circuit device according to claim 4, said cleaning in said step (g) is performed by using a solution containing at least one of hydrogen fluoride (HF), citric acid, oxalic acid, hydrogen peroxide ( $H_2O_2$ ), hydrochloric acid (HCl), sulfuric acid ( $H_4SO_4$ ) and ammonia ( $NH_3$ ).

52. A method for manufacturing semiconductor integrated circuit device according to claim 5, said cleaning in said step (g) is performed by using a solution

*sub  
C2 added*  
containing at least one of hydrogen fluoride (HF), citric acid, oxalic acid, hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), hydrochloric acid (HCl), sulfuric acid (H<sub>4</sub>SO<sub>4</sub>) and ammonia (NH<sub>3</sub>).

*B5*  
53. A method for manufacturing semiconductor integrated circuit device according to claim 4, wherein said step (h) includes the step of cleaning substrate surfaces with a solution containing hydrogen fluoride (HF), hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), or a solution capable of removing foreign matters or a contaminant metal after the selective growth or preferential growth.

54. A method for manufacturing semiconductor integrated circuit device according to claim 5, wherein said step (h) includes the step of cleaning substrate surfaces with a solution containing hydrogen fluoride (HF), hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), or a solution capable of removing foreign matters or a contaminant metal after the selective growth or preferential growth.

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C2*